

UDP Results for the RC Rat-Only Weight Regression
Starting at Estimated LD50
5000 mg/kg Upper Limit
Results for 46 chemicals for the 3T3 NRU and 47 chemicals for the NHK NRU
(see notes to Table 6-5 for chemicals excluded)

Summary of Animals Used by Cell Type

| Cell | Sigma | Method | Std. Error | Animals | Difference | P-Value* | % Savings |
|----------------------------|---------|---------|------------|---------|------------------|------------------|-----------|
| 3T3 | 0.12 | Cyto | 0.305 | 7.03 | 1.11 | 0.0033 | 13.6% |
| | | Default | 0.250 | 8.15 | | | |
| | 0.25 | Cyto | 0.289 | 7.78 | 1.23 | 0.0009 | 13.7% |
| | | Default | 0.245 | 9.01 | | | |
| | 0.5 | Cyto | 0.239 | 8.52 | 1.28 | <.0001 | 13.1% |
| | | Default | 0.206 | 9.80 | | | |
| | 1.25 | Cyto | 0.205 | 9.11 | 1.26 | <.0001 | 12.2% |
| | | Default | 0.164 | 10.37 | | | |
| 2 | Cyto | 0.180 | 9.27 | 1.05 | <.0001 | 10.2% | |
| | Default | 0.131 | 10.32 | | | | |
| Average Animal Difference: | | | | | 1.19 | | |

| | | | | | | | |
|----------------------------|---------|---------|-------|-------|------------------|------------------|-------|
| NHK | 0.12 | Cyto | 0.331 | 7.08 | 1.06 | 0.0036 | 13.0% |
| | | Default | 0.247 | 8.14 | | | |
| | 0.25 | Cyto | 0.310 | 7.83 | 1.14 | 0.0011 | 12.7% |
| | | Default | 0.238 | 8.98 | | | |
| | 0.5 | Cyto | 0.256 | 8.59 | 1.20 | <.0001 | 12.2% |
| | | Default | 0.198 | 9.79 | | | |
| | 1.25 | Cyto | 0.216 | 9.21 | 1.18 | <.0001 | 11.4% |
| | | Default | 0.155 | 10.39 | | | |
| 2 | Cyto | 0.193 | 9.35 | 0.99 | <.0001 | 9.6% | |
| | Default | 0.123 | 10.34 | | | | |
| Average Animal Difference: | | | | | 1.12 | | |

Summary of Animal Deaths by Cell Type

| Cell Type | Sigma | Method | 3 Animals at Limit Dose | 5 Reversals | Likelihood Ratio | Max Animals | Animals Used | Animals Dead | % Deaths |
|-----------|---------|---------|-------------------------|-------------|------------------|-------------|--------------|--------------|----------|
| 3T3 | 0.12 | Cyto | 23.8% | 50.7% | 22.9% | 2.6% | 7.03 | 3.38 | 48.1% |
| | | Default | 23.3% | 51.7% | 21.5% | 3.5% | 8.15 | 3.45 | 42.4% |
| | 0.25 | Cyto | 23.1% | 30.7% | 41.6% | 4.6% | 7.78 | 3.73 | 48.0% |
| | | Default | 22.5% | 32.0% | 38.0% | 7.6% | 9.01 | 3.81 | 42.3% |
| | 0.5 | Cyto | 20.7% | 18.4% | 53.5% | 7.4% | 8.52 | 4.12 | 48.3% |
| | | Default | 19.6% | 19.1% | 47.7% | 13.6% | 9.80 | 4.19 | 42.8% |
| | 1.25 | Cyto | 15.0% | 12.7% | 60.9% | 11.3% | 9.11 | 4.51 | 49.5% |
| | | Default | 13.3% | 13.3% | 53.0% | 20.4% | 10.37 | 4.64 | 44.7% |
| 2 | Cyto | 12.9% | 11.9% | 62.7% | 12.6% | 9.27 | 4.62 | 49.9% | |
| | Default | 10.5% | 12.3% | 56.6% | 20.6% | 10.32 | 4.74 | 45.9% | |
| NHK | 0.12 | Cyto | 25.4% | 49.6% | 21.7% | 3.3% | 7.08 | 3.34 | 47.2% |
| | | Default | 25.0% | 50.9% | 20.6% | 3.5% | 8.14 | 3.39 | 41.7% |
| | 0.25 | Cyto | 24.5% | 29.7% | 40.5% | 5.2% | 7.83 | 3.69 | 47.2% |
| | | Default | 23.9% | 31.6% | 37.1% | 7.4% | 8.98 | 3.74 | 41.7% |
| | 0.5 | Cyto | 21.9% | 17.9% | 52.3% | 7.9% | 8.59 | 4.09 | 47.6% |
| | | Default | 21.0% | 18.9% | 46.7% | 13.4% | 9.79 | 4.12 | 42.1% |
| | 1.25 | Cyto | 15.6% | 12.5% | 59.9% | 12.0% | 9.21 | 4.51 | 49.0% |
| | | Default | 13.9% | 13.2% | 52.4% | 20.5% | 10.39 | 4.60 | 44.3% |
| 2 | Cyto | 12.7% | 11.8% | 62.2% | 13.3% | 9.35 | 4.63 | 49.5% | |
| | Default | 10.9% | 12.4% | 55.9% | 20.9% | 10.34 | 4.72 | 45.6% | |

Summary of Animals Used by GHS Toxicity Category and Cell Type

| Toxcat | Cell | Sigma | Method | Std. Error | Animals | Difference | P-Value* | % Savings | |
|----------------------------|----------------------------|---------|---------|------------|---------|------------|---------------|-----------|--|
| 1 | 3T3 | 0.12 | Cyto | 0.647 | 10.45 | 0.18 | 0.5000 | 1.6% | |
| | | | Default | 0.486 | 10.62 | | | | |
| | | 0.25 | Cyto | 0.637 | 11.06 | 0.19 | 0.4501 | 1.7% | |
| | | | Default | 0.330 | 11.24 | | | | |
| | | 0.5 | Cyto | 0.564 | 11.42 | 0.33 | 0.3538 | 2.8% | |
| | | | Default | 0.189 | 11.75 | | | | |
| | | 1.25 | Cyto | 0.513 | 11.70 | 0.34 | 0.4011 | 2.8% | |
| | | | Default | 0.126 | 12.04 | | | | |
| | | 2 | Cyto | 0.446 | 11.54 | 0.27 | 0.4254 | 2.3% | |
| | | | Default | 0.120 | 11.80 | | | | |
| | Average Animal Difference: | | | | | | 0.26 | | |
| | NHK | 0.12 | Cyto | 0.541 | 11.36 | -0.78 | 0.2670 | -7.4% | |
| | | | Default | 0.531 | 10.58 | | | | |
| | | 0.25 | Cyto | 0.422 | 11.90 | -0.85 | 0.0917 | -7.7% | |
| | | | Default | 0.407 | 11.05 | | | | |
| | | 0.5 | Cyto | 0.355 | 12.19 | -0.62 | 0.0485 | -5.4% | |
| | | | Default | 0.264 | 11.57 | | | | |
| | | 1.25 | Cyto | 0.328 | 12.41 | -0.45 | 0.0485 | -3.8% | |
| | | | Default | 0.158 | 11.96 | | | | |
| | | 2 | Cyto | 0.335 | 12.16 | -0.45 | 0.0388 | -3.9% | |
| | | Default | 0.131 | 11.70 | | | | | |
| Average Animal Difference: | | | | | | -0.63 | | | |
| 2 | 3T3 | 0.12 | Cyto | 0.496 | 7.76 | 0.19 | 0.1618 | 2.4% | |
| | | | Default | 0.207 | 7.95 | | | | |
| | | 0.25 | Cyto | 0.574 | 8.59 | -0.13 | 0.5000 | -1.5% | |
| | | | Default | 0.105 | 8.46 | | | | |
| | | 0.5 | Cyto | 0.634 | 9.20 | -0.21 | 0.5000 | -2.4% | |
| | | | Default | 0.121 | 8.98 | | | | |
| | | 1.25 | Cyto | 0.595 | 9.65 | -0.20 | 0.5000 | -2.2% | |
| | | | Default | 0.110 | 9.45 | | | | |
| | | 2 | Cyto | 0.442 | 9.82 | -0.23 | 0.5000 | -2.4% | |
| | | | Default | 0.072 | 9.59 | | | | |
| | Average Animal Difference: | | | | | | -0.12 | | |
| | NHK | 0.12 | Cyto | 0.334 | 7.06 | 1.17 | 0.0464 | 14.2% | |
| | | | Default | 0.322 | 8.23 | | | | |
| | | 0.25 | Cyto | 0.268 | 7.84 | 0.87 | 0.0645 | 10.0% | |
| | | | Default | 0.187 | 8.72 | | | | |
| | | 0.5 | Cyto | 0.329 | 8.33 | 0.96 | 0.0645 | 10.3% | |
| | | | Default | 0.256 | 9.28 | | | | |
| | | 1.25 | Cyto | 0.266 | 8.82 | 0.92 | 0.0464 | 9.5% | |
| | | | Default | 0.220 | 9.74 | | | | |
| | | 2 | Cyto | 0.155 | 9.18 | 0.58 | 0.0645 | 5.9% | |
| | | Default | 0.106 | 9.76 | | | | | |
| Average Animal Difference: | | | | | | 0.90 | | | |

Summary of Animals Used by GHS Toxicity Category and Cell Type

| Toxcat | Cell | Sigma | Method | Std. Error | Animals | Difference | P-Value* | % Savings | |
|----------------------------|----------------------------|---------|---------|------------|---------|------------|---------------|-----------|--|
| 3 | 3T3 | 0.12 | Cyto | 0.280 | 6.74 | 0.17 | 0.4688 | 2.5% | |
| | | | Default | 0.332 | 6.91 | | | | |
| | | 0.25 | Cyto | 0.238 | 7.23 | -0.03 | 0.4688 | -0.4% | |
| | | | Default | 0.258 | 7.21 | | | | |
| | | 0.5 | Cyto | 0.164 | 7.84 | -0.04 | 0.5000 | -0.5% | |
| | | | Default | 0.178 | 7.80 | | | | |
| | | 1.25 | Cyto | 0.101 | 8.74 | -0.03 | 0.4688 | -0.3% | |
| | | | Default | 0.087 | 8.72 | | | | |
| | | 2 | Cyto | 0.056 | 9.18 | -0.06 | 0.1987 | -0.7% | |
| | | Default | 0.071 | 9.12 | | | | | |
| | Average Animal Difference: | | | | | | 0.00 | | |
| | NHK | 0.12 | Cyto | 0.214 | 6.52 | 0.52 | 0.2431 | 7.4% | |
| | | | Default | 0.377 | 7.04 | | | | |
| | | 0.25 | Cyto | 0.329 | 7.31 | 0.00 | 0.4073 | 0.0% | |
| | | | Default | 0.285 | 7.32 | | | | |
| | | 0.5 | Cyto | 0.309 | 8.02 | -0.20 | 0.4688 | -2.6% | |
| | | | Default | 0.196 | 7.82 | | | | |
| | | 1.25 | Cyto | 0.177 | 8.84 | -0.14 | 0.2427 | -1.6% | |
| | | | Default | 0.117 | 8.71 | | | | |
| | | 2 | Cyto | 0.107 | 9.19 | -0.05 | 0.4688 | -0.6% | |
| | Default | 0.068 | 9.13 | | | | | | |
| Average Animal Difference: | | | | | | 0.03 | | | |
| 4 | 3T3 | 0.12 | Cyto | 0.246 | 6.80 | 0.54 | 0.1937 | 7.4% | |
| | | | Default | 0.382 | 7.34 | | | | |
| | | 0.25 | Cyto | 0.122 | 7.17 | 0.99 | 0.0485 | 12.1% | |
| | | | Default | 0.369 | 8.15 | | | | |
| | | 0.5 | Cyto | 0.045 | 7.60 | 1.28 | 0.0094 | 14.4% | |
| | | | Default | 0.375 | 8.88 | | | | |
| | | 1.25 | Cyto | 0.058 | 8.41 | 0.99 | 0.0074 | 10.5% | |
| | | | Default | 0.227 | 9.40 | | | | |
| | | 2 | Cyto | 0.056 | 8.89 | 0.67 | 0.0045 | 7.0% | |
| | | Default | 0.155 | 9.56 | | | | | |
| | Average Animal Difference: | | | | | | 0.89 | | |
| | NHK | 0.12 | Cyto | 0.220 | 6.92 | 0.43 | 0.3089 | 5.9% | |
| | | | Default | 0.367 | 7.35 | | | | |
| | | 0.25 | Cyto | 0.132 | 7.27 | 0.89 | 0.0746 | 10.9% | |
| | | | Default | 0.336 | 8.16 | | | | |
| | | 0.5 | Cyto | 0.100 | 7.68 | 1.20 | 0.0094 | 13.5% | |
| | | | Default | 0.362 | 8.88 | | | | |
| | | 1.25 | Cyto | 0.079 | 8.53 | 0.87 | 0.0074 | 9.3% | |
| | | | Default | 0.215 | 9.40 | | | | |
| | | 2 | Cyto | 0.066 | 8.91 | 0.64 | 0.0058 | 6.7% | |
| | Default | 0.128 | 9.54 | | | | | | |
| Average Animal Difference: | | | | | | 0.81 | | | |

Summary of Animals Used by GHS Toxicity Category and Cell Type

| Toxcat | Cell | Sigma | Method | Std. Error | Animals | Difference | P-Value* | % Savings | |
|--------|----------------------------|----------------------------|---------|------------|---------|------------|---------------|-----------|--|
| 5 | 3T3 | 0.12 | Cyto | 0.310 | 6.98 | 2.19 | 0.0015 | 23.9% | |
| | | | Default | 0.247 | 9.17 | | | | |
| | | 0.25 | Cyto | 0.278 | 7.73 | 2.64 | 0.0004 | 25.5% | |
| | | | Default | 0.112 | 10.37 | | | | |
| | | 0.5 | Cyto | 0.200 | 8.26 | 2.57 | 0.0004 | 23.7% | |
| | | | Default | 0.067 | 10.83 | | | | |
| | | 1.25 | Cyto | 0.115 | 8.49 | 2.28 | 0.0004 | 21.2% | |
| | | | Default | 0.056 | 10.78 | | | | |
| | | 2 | Cyto | 0.092 | 8.62 | 1.84 | 0.0004 | 17.6% | |
| | | | Default | 0.053 | 10.46 | | | | |
| | | Average Animal Difference: | | | | | 2.30 | | |
| | NHK | 0.12 | Cyto | 0.370 | 7.08 | 2.07 | 0.0044 | 22.7% | |
| | | | Default | 0.227 | 9.15 | | | | |
| | | 0.25 | Cyto | 0.314 | 7.81 | 2.55 | 0.0004 | 24.6% | |
| | | | Default | 0.083 | 10.36 | | | | |
| | | 0.5 | Cyto | 0.215 | 8.36 | 2.47 | 0.0004 | 22.8% | |
| | | | Default | 0.047 | 10.83 | | | | |
| | | 1.25 | Cyto | 0.122 | 8.62 | 2.12 | 0.0004 | 19.7% | |
| | | | Default | 0.045 | 10.74 | | | | |
| | | 2 | Cyto | 0.103 | 8.71 | 1.70 | 0.0004 | 16.3% | |
| | | | Default | 0.049 | 10.41 | | | | |
| | Average Animal Difference: | | | | | 2.18 | | | |
| 6 | 3T3 | 0.12 | Cyto | 0.393 | 4.68 | 2.00 | 0.0045 | 30.0% | |
| | | | Default | 0.369 | 6.69 | | | | |
| | | 0.25 | Cyto | 0.462 | 5.89 | 2.02 | 0.0102 | 25.5% | |
| | | | Default | 0.432 | 7.91 | | | | |
| | | 0.5 | Cyto | 0.330 | 7.48 | 2.07 | 0.0014 | 21.6% | |
| | | | Default | 0.262 | 9.55 | | | | |
| | | 1.25 | Cyto | 0.245 | 8.41 | 2.49 | 0.0007 | 22.8% | |
| | | | Default | 0.061 | 10.90 | | | | |
| | | 2 | Cyto | 0.204 | 8.44 | 2.33 | 0.0007 | 21.6% | |
| | | | Default | 0.032 | 10.77 | | | | |
| | | Average Animal Difference: | | | | | 2.18 | | |
| | NHK | 0.12 | Cyto | 0.380 | 4.78 | 1.85 | 0.0032 | 27.9% | |
| | | | Default | 0.344 | 6.64 | | | | |
| | | 0.25 | Cyto | 0.463 | 5.90 | 1.91 | 0.0105 | 24.5% | |
| | | | Default | 0.426 | 7.81 | | | | |
| | | 0.5 | Cyto | 0.360 | 7.54 | 1.95 | 0.0024 | 20.6% | |
| | | | Default | 0.273 | 9.49 | | | | |
| | | 1.25 | Cyto | 0.250 | 8.56 | 2.33 | 0.0004 | 21.4% | |
| | | | Default | 0.045 | 10.89 | | | | |
| | | 2 | Cyto | 0.240 | 8.63 | 2.20 | 0.0004 | 20.3% | |
| | | | Default | 0.028 | 10.83 | | | | |
| | Average Animal Difference: | | | | | 2.05 | | | |

*P-Value is from one-side Wilcoxon Signed Ranked test for difference in animal use between the default and cytotoxicity methods. **Boldfaced** values are significant values at $p < 0.05$.

Numbers are numbers of animals unless otherwise specified

Sigma - reciprocal of slope

Cyto= using NRU-predicted LD50 as starting dose

Default - using default starting dose of 175 mg/kg